1064-81-390 **Jens Koeplinger*** (`jens@prisage.com`), 105 E Avondale Dr, Greensboro, NC 27403, and **Vladimir Dzhunushaliev** (`vdzhunus@krsu.edu.kg`), Kyrgyz-Russian Slavic University, Dept. Phys. and Microel. Eng., Kievskaya Str. 44, 720021 Bishkek, Kyrgyzstan. *Notes towards a nonassociative quantum theory.* Preliminary report.

This talk briefly sketches two proposed approaches where nonassociativity is used to model observable properties of a physical quantum system. The first approach aims at understanding strongly coupled fields, such as the strong force of the Standard Model, which is modeled through unobservable interaction partners and has a limited interaction radius. The second approach investigates algebraic properties of exponentiation in the complex numbers, for a proposed generalization of Born's rule in quantum mechanics when using octonions. (Received September 14, 2010)